IN THE CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

**Listing of the Claims:**

1.    (Currently amended) An automated method of scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides having image pixels which are dark relative to other image pixels which are bright, ~~characterised in that it includes determining~~ the method comprising obtaining the number of relatively dark image pixels ~~compared to relatively bright image pixels~~ by counting those pixels having intensities below a predetermined intensity threshold and scoring ER or PR in accordance with the magnitude of the number ~~of relatively dark pixels~~ so obtained.

2.    (Currently amended) ~~A method according to Claim 1 characterised in that~~ An automated method of scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides having image pixels which are dark relative to other image pixels which are bright, the method comprising determining the number of relatively dark image pixels ~~is determined~~ by transforming the image data to a different image space having an intensity image plane, ~~and~~ counting the number of image pixels having intensities below a predetermined intensity threshold, and scoring ER or PR in accordance with the magnitude of the number of relatively dark image pixels.

3.    (Currently amended) An automated method of scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides ~~characterised in that it includes,~~ the method including the steps of:

   a)    determining the number of pixels in an image having intensities below a predetermined intensity threshold and which are thereby relatively dark ~~intensities~~ compared to other pixels in ~~an~~ the image,

   b)    determining pixel number thresholds to quantify scoring, and

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c)     comparing the number of relatively dark pixels with the <u>pixel number</u> thresholds and scoring ER or PR in accordance therewith.

4.     (Currently amended) An automated method of scoring <u>Oestrogen and Progesterone Receptors expression (ER and PR)</u> from image data obtained from histological slides ~~characterised in that it includes,~~ the image data comprising pixels corresponding to blobs and pixels corresponding to background, and the method having the steps of:

a)     determining what proportion of total blob area is brown blob area in an image,

b)     determining brown blob area proportion thresholds to quantify scoring, and

c)     comparing the brown blob area proportion with the <u>brown blob area proportion</u> thresholds and scoring ER or PR in accordance therewith.

5.     (Currently amended) ~~A method according to Claim 4 characterised in that the proportion of total blob area which is brown blob area is determined by~~ <u>An automated method of scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, the method including</u> the steps of:

a)     remapping pixel intensities in the image data to increase the contrast of relatively darker image regions and to transform relatively brighter image regions into a contrast-free background,

b)     converting the remapped image data into <u>image data corresponding to</u> thresholded binary images from which total blob area and brown blob area are discernible respectively, ~~and~~

c)     <u>expressing brown blob area as a proportion of total blob area,</u>

d)     <u>determining brown blob area proportion thresholds to quantify scoring, and</u>

e)     <u>comparing the brown blob area proportion with the brown blob area proportion thresholds and scoring ER or PR in accordance therewith.</u>

6.     (Currently amended) A method according to Claim ~~3 characterised in that~~ <u>4 wherein</u> the step of ~~scoring ER or PR~~ <u>comparing the brown blob area proportion with the brown blob</u>

area proportion thresholds provides a first contribution ~~thereto~~ to an ER or PR score, and the method includes the steps of:

a) providing a second contribution to ~~scoring~~ the ER or PR score by determining the number of pixels in an image having intensities below a predetermined intensity threshold and which are thereby relatively dark ~~image pixels~~ compared to ~~relatively bright image~~ other pixels in the image and deriving the second contribution in accordance with the magnitude of the number of relatively dark pixels, and

b) combining the first and second contributions.

7. (Currently amended) ~~A method according to Claim 6 characterised in that the number of relatively dark image pixels is determined~~ An automated method of scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, the method including the steps of:

a) determining what proportion of total blob area is brown blob area in an image,

b) determining brown blob area proportion thresholds to quantify scoring,

c) comparing the brown blob area proportion with the brown blob area proportion thresholds to provide a first contribution to an ER or PR score,

d) providing a second contribution to the ER or PR score by determining the number of relatively dark image pixels compared to relatively bright image pixels by transforming the image data to a different image space having an intensity image plane and counting the number of pixels having intensity below a predetermined intensity threshold,

e) deriving the second contribution in accordance with the magnitude of the number of relatively dark pixels, and

f) combining the first and second contributions.

8. (Currently amended) An automated method of scoring Oestrogen and Progesterone Receptors expression (ER and PR) for image data obtained from histological slides, ~~characterised in that it includes~~ the method having the steps of:

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a)     remapping pixel intensities in the image data to increase the contrast of relatively darker image regions and to transform relatively brighter image regions into a contrast-free background,

b)     converting the remapped image data into <u>image data corresponding to</u> thresholded images in which total blob area and brown blob area respectively are distinguished from other image regions,

c)     expressing brown blob area as a proportion of total blob area to provide a first contribution to a score,

d)     providing a second contribution to the score by determining the number of relatively dark image pixels compared to relatively bright image pixels and deriving the second contribution in accordance with the magnitude of the number of relatively dark pixels, and

e)     deriving the score on the basis of the first and second contributions collectively.

9.     (Currently amended A method according to Claim 8 ~~characterised in that it includes~~ <u>including</u> determining a hue for the image data and deriving a correction for the score indicated by the first and second contributions if the hue indicates a degree of blueness or brownness which renders such correction appropriate.

10.     (Currently amended) Computer apparatus for scoring <u>Oestrogen and Progesterone Receptors expression (</u>ER and PR<u>)</u> from image data obtained from histological slides <u>having image pixels which are dark relative to other image pixels which are bright,</u> ~~characterised in that it is~~ <u>the computer apparatus being</u> programmed to ~~determine~~ <u>obtain</u> the number of relatively dark image pixels ~~compared to relatively bright image pixels~~ <u>by counting those pixels having intensities below a predetermined intensity threshold</u> and to score ER or PR in accordance with the magnitude of the number ~~of relatively dark pixels~~ <u>so obtained.</u>

11.     (Currently amended) ~~Apparatus according to Claim 10 characterised in that it is~~ <u>Computer apparatus for scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides having relatively dark image</u>

pixels and relatively bright image pixels, the computer apparatus being programmed to determine the number of relatively dark image pixels by transforming the image data to a different image space having an intensity image plane and counting the number of image pixels having intensities below a predetermined intensity threshold, and also being programmed to score ER or PR in accordance with the magnitude of the number of relatively dark image pixels.

12. (Currently amended) Computer apparatus for scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, the image data comprising pixels corresponding to blobs and pixels corresponding to background and the computer apparatus being ~~characterised in that it is~~ programmed to:

    a)     determine the number of pixels in an image having intensities below a predetermined intensity threshold and which are thereby relatively dark ~~intensities~~ compared to other pixels in ~~an~~ the image,

    b)     determine pixel number thresholds to quantify scoring, and

    c)     compare the number of relatively dark pixels with the pixel number thresholds and ~~scoring~~ score ER or PR in accordance therewith.

13. (Currently amended) Computer apparatus for scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, the image data comprising pixels corresponding to blobs and pixels corresponding to background and ~~characterised in that it is~~ the computer apparatus being programmed to:

    a)     determine what proportion of total blob area is brown blob area in an image,

    b)     determine brown blob area proportion thresholds to quantify scoring, and

    c)     compare the brown blob area proportion with the brown blob area proportion thresholds and score ER or PR in accordance therewith.

14. (Currently amended) ~~Apparatus according to Claim 13 characterised in that it is~~ Computer apparatus for scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, the computer apparatus being programmed to ~~determine the proportion of total blob area which is brown blob area by:~~

a)   ~~remapping~~ remap pixel intensities in the image data to increase the contrast of relatively darker image regions and to transform relatively brighter image regions into a contrast-free background,

b)   ~~converting~~ convert the remapped image data into image data corresponding to thresholded binary images from which total blob area and brown blob area are discernible respectively, ~~and~~

c)   ~~expressing~~ express brown blob area as a proportion of total blob area,

d)   determine brown blob area proportion thresholds to quantify scoring, and

e)   compare the brown blob area proportion with the brown blob area proportion thresholds and score ER or PR in accordance therewith.

15.   (Currently amended) Apparatus according to Claim ~~12 characterised in that it is~~ 13 programmed to ~~score ER or PR~~ compare the brown blob area proportion with the brown blob area proportion thresholds to provide ~~as~~ a first contribution ~~thereto~~ to an ER or PR score, and ~~it is~~ the apparatus also being programmed to:

a)   provide a second contribution to ~~scoring~~ the ER or PR score by determining the number of ~~pixels in an image having intensities below a predetermined intensity threshold and which are thereby~~ relatively dark ~~image pixels~~ compared to ~~relatively bright image~~ other pixels in the image and ~~deriving~~ derive the second contribution in accordance with the magnitude of the number of relatively dark pixels, and

b)   combine the first and second contributions.

16.   (Currently amended) ~~Apparatus according to Claim 15 characterised in that it is~~ Computer apparatus for scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, the computer apparatus being programmed to:

a)   determine what proportion of total blob area is brown blob area in an image,

b)   determine brown blob area proportion thresholds to quantify scoring,

c) compare the brown blob area proportion with the brown blob area proportion thresholds and score ER or PR in accordance therewith to provide a first contribution to an ER or PR score,

d) ~~transforming~~ transform the image data to a different image space having an intensity image plane and ~~counting~~ count the number of image pixels having intensity below a predetermined intensity threshold and which are thereby relatively dark compared to other image pixels which are relatively bright,

e) derive a second contribution to an ER or PR score in accordance with the magnitude of the number of relatively dark image pixels, and

f) combine the first and second contributions.

17. (Currently amended) Computer apparatus for scoring Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, ~~characterised in that it is~~ the computer apparatus being programmed to:

a) remap pixel intensities in the image data to increase the contrast of relatively ~~darker~~ dark image regions and to transform relatively ~~brighter~~ bright image regions into a contrast-free background,

b) convert the remapped image data into image data corresponding to thresholded binary images in which total blob area and brown blob area respectively are distinguished from other image regions,

c) express brown blob area as a proportion of total blob area to provide a first contribution to a score,

d) provide a second contribution to the score by determining the number of relatively dark image pixels compared to relatively bright image pixels and deriving the second contribution in accordance with the magnitude of the number of relatively dark pixels, and

e) derive the score on the basis of the first and second contributions collectively.

18. (Currently amended) Apparatus according to Claim 17 ~~characterised in that it is~~ programmed to determine a hue for the image data and derive a correction for the score

indicated by the first and second contributions if the hue indicates a degree of blueness or brownness which renders such correction appropriate.

19. (Currently amended) A computer ~~programme~~ software product comprising a computer readable hardware medium containing computer readable instructions for controlling operation of computer apparatus to implement scoring of Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides ~~characterised in that it includes~~ having image pixels which are dark relative to other image pixels which are bright, wherein the instructions are for ~~determining~~ obtaining the number of relatively dark image pixels ~~compared to relatively bright image pixels~~ by counting those pixels having intensities below a predetermined intensity threshold and scoring ER or PR in accordance with the magnitude of the number ~~of relatively dark pixels~~ so obtained.

20. (Currently amended) A ~~programme~~ computer software product according to Claim 19 ~~characterised in that it includes~~ wherein the instructions are also for ~~determining~~ obtaining the number of relatively dark image pixels by transforming the image data to a different image space having an intensity image plane and counting the number of pixels having intensities below a predetermined intensity threshold.

21. (Currently amended) A computer ~~programme~~ software product comprising a computer readable hardware medium containing computer readable instructions for controlling operation of computer apparatus to implement scoring of Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, ~~characterised in that it includes~~ wherein the instructions are for:

a) determining the number of pixels in an image having intensities below a predetermined intensity threshold and which are thereby relatively dark ~~intensities~~ compared to other pixels in ~~an~~ the image,

b) determining pixel number thresholds to quantify scoring, and

c) comparing the number of relatively dark pixels with the pixel number thresholds and scoring ER or PR in accordance therewith.

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22. (Currently amended) A computer ~~programme~~ software product comprising a computer readable hardware medium containing computer readable instructions for controlling operation of computer apparatus to implement scoring of Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, the image data comprising pixels corresponding to blobs and pixels corresponding to background and the ~~characterised in that it includes~~ instructions being for:

a) determining what proportion of total blob area is brown blob area in an image,

b) determining brown blob area proportion thresholds to quantify scoring, and

c) comparing the brown blob area proportion with the brown blob area proportion thresholds and scoring ER or PR in accordance therewith.

23. (Currently amended) A ~~programme~~ computer software product according to Claim 22 ~~characterised in that it includes~~ wherein the computer readable instructions include instructions for determining the proportion of total blob area which is brown blob area by:

a) remapping pixel intensities in the image data to increase the contrast of relatively darker image regions and to transform relatively brighter image regions into a contrast-free background,

b) converting the remapped image data into image data corresponding to thresholded binary images from which total blob area and brown blob area are discernible respectively, and

c) expressing brown blob area as a proportion of total blob area.

24. (Currently amended) A ~~programme~~ computer software product according to Claim ~~21~~ ~~characterised in that~~ 22 wherein the computer readable instructions for ~~scoring ER or PR~~ comparing the brown blob area proportion with the brown blob area proportion thresholds are for providing a first contribution ~~thereto~~ to an ER or PR score and ~~it~~ the product also includes instructions for:

a) providing a second contribution to ~~scoring~~ the ER or PR score by determining the number of pixels in an image having intensities below a predetermined intensity threshold and which are thereby relatively dark ~~image pixels~~ compared to ~~relatively bright image~~ other pixels in the image and deriving the second

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contribution in accordance with the magnitude of the number of relatively dark pixels, and

b) combining the first and second contributions.

25. (Currently amended) A ~~programme~~ computer software product according to Claim 24 ~~characterised in that it includes~~ wherein the computer readable instructions include instructions for determining the number of relatively dark image pixels by transforming the image data to a different image space having an intensity image plane and counting the number of pixels having intensity below a predetermined intensity threshold.

26. (Currently amended) A computer ~~programme~~ software product comprising a computer readable hardware medium containing computer readable instructions for controlling operation of computer apparatus to ~~scoring~~ score Oestrogen and Progesterone Receptors expression (ER and PR) from image data obtained from histological slides, the ~~characterised in that it includes~~ instructions being for implementing the steps of:

a) remapping pixel intensities in the image data to increase the contrast of relatively ~~darker~~ dark image regions and to transform relatively ~~brighter~~ bright image regions into a contrast-free background,

b) converting the remapped image data into image data corresponding to thresholded images in which total blob area and brown blob area respectively are distinguished from other image regions,

c) expressing brown blob area as a proportion of total blob area to provide a first contribution to a score,

d) providing a second contribution to the score by determining the number of relatively dark image pixels compared to relatively bright image pixels and deriving the second contribution in accordance with the magnitude of the number of relatively dark pixels, and

e) deriving the score on the basis of the first and second contributions collectively.

27. (Currently amended) A ~~programme~~ computer software product according to Claim 26 ~~characterised in that it includes~~ wherein the computer readable instructions include

instructions for determining a hue for the image data and deriving a correction for the score indicated by the first and second contributions if the hue indicates a degree of blueness or brownness which renders such correction appropriate.